The doctoral degree requires 72 hours beyond a bachelor's degree, and may include as many as 24 hours credit from a prior master's degree. Doctoral candidates must pass a qualifying exam during their first year in residence to assess their general background so that a meaningful program of study can be constructed. The usual doctoral program involves courses within and outside the department, and researching the dissertation topic prior to taking the comprehensive examination by the end of the second year. The results of the dissertation research are presented to the faculty and graduate students when the student has completed the project.

**Degree Requirements**

- **Residence:** The equivalent of 3 full years of graduate work (72 hours) is required. One year's credit (up to 24 credit hours for graduate-level, lecture-based courses) is normally granted for the Master's degree.
- All PhD students must take at least three classes (9-12 hours) outside of the Department, at the 7000 level or higher, as approved by their PhD Advisory Committee. This requirement can be satisfied by non-Geology graduate credits taken elsewhere and accepted by the Graduate School.
- Each year Ph.D. students will submit a report outlining their progress toward degree.
- The student must maintain a minimum 3.0 GPA in order to remain in good standing.
- **Qualifying Exam (see below) and Comprehensive Exam (see below).**
- Completion and defense of a Dissertation.

**Sample Plan of Study**

The following plan of study is meant to serve as an example, only. An individual student's plan of study will be developed in coordination with their graduate supervisor and reflect the emphasis of their study. The study may also enroll in additional courses that do not appear on the Plan of Study submitted to the Office of Graduate Studies.

- **Transfer from Masters Degree:** 15 hours (graduate courses, only)
- **Fall semester (year 1)**
  - GEOL 7180 Solar System Science (3 hours)
  - GEOL 7650 Plate Tectonics (3 hours)
  - GEOL 8300 Precambrian History (3 hours)
- **Spring semester (year 1)**
  - GEOL 8450 Tectonics and Sedimentation (3 hours)
  - GEOL 8320 Introduction to Seismology (3 hours)
  - STAT 7070 Statistical Methods for Research (3 hours)
- **Fall semester (year 2)**
  - GEOL 8800 Applied Numerical Analysis (3 hours)
  - ASTRON 7180 Solar System Science (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- **Spring semester (year 2)**
  - GEOL 8140 Metamorphic Petrology (3 hours)
  - LTC 8724 College Science Teaching (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - [Comprehensive Exam passed]
- **Summer term (year 2)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- **Fall semester (year 3)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - ED_LPA 9456 The Professoriate (3 hours)
- **Spring semester (year 3)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- **Summer term (year 3)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- **Fall semester (year 4)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- **Spring semester (year 4)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- **Summer term (year 4)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- **Fall semester (year 5)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- **Spring semester (year 5)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- **Fall semester (year 5)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- **Summer term (year 5)**
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)

**Exams**

**Qualifying Exam Process**

After filing a formal application for the Ph.D., the student must take the departmental Ph.D. Qualifying Exam following the first semester in residence. This is a written and oral exam administered by an exam committee. Passing this exam enables the student to form a Ph.D. Advisory committee and plan the Ph.D. Program of Study.

**Comprehensive Exam Process**

After the Program of Study is completed the student must take the Comprehensive Exam—typically in their 4th or 5th semester. The written portion of the exam is a dissertation research proposal, followed by an oral defense of the proposal. The presentation of the dissertation proposal is open to the public. Following successful completion of the Comprehensive Exam, the Ph.D. student is now a Ph.D. candidate and can devote full attention to the required dissertation.

**Dissertation Requirements**

The dissertation is expected to be an original piece of research that is a genuine contribution to geology. Continuous registration (fall, winter and summer) is required until the degree is received. The student is required to make an oral presentation of the results of his dissertation research before faculty and students as the project nears completion. A separate
defense of the dissertation occurs during the Final Examination after the dissertation has been read by the supervisor and committee members.

Admissions

Fall deadline: none set, but January 31st for guaranteed consideration for departmental financial aid for the following Fall-Spring academic year.

Additional admission requirements and criteria:

- The equivalent of the MU Master of Science degree in geology or in another related science is normally required of each student prior to admission to the Ph.D. program. Students with outstanding first year graduate records, however, may bypass the Master's degree upon petition to the faculty.

- Minimum G.P.A. of 3.00 (on a 4.0 scale) for last 2 years undergraduate work and at least a 3.20 G.P.A. in Master's-level classroom work in geology (this includes 7000-level courses) taken as a graduate student.

- International students for whom English is a foreign language must submit a minimum TOEFL score 550 (paper-based) or 80 (Internet-based) or minimum IELTS of 6.5 (average) to be considered for admission.

- GRE scores must be submitted prior to admission – this is a departmental requirement.

- 3 letters of recommendation.

- Personal statement describing the applicants interests, background, motivation, and goals for graduate study at MU.

Note on GRE Scores and GPA: Our quantitative assessment of applicants uses a combination of GPA for the last 60 hours and the student’s GRE verbal, quantitative and analytical writing scores. We have a formula that weights the GPA and total GRE scores equally.

All materials are submitted online through the Office of Graduate Studies.

Financial Aid from the Program

Although some graduate students in Geological Sciences are externally supported by fellowships or sponsors, many are generally supported by Graduate Teaching Assistantships and Graduate Research Assistantships. If you are interested in assistantship support, please be sure to indicate so on your application form.